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EXAMINER				
IPPOLITO RAUSCH, NICOLE				
ART UNIT		PAPER NUMBER		
2881				
NOTIFICATION DATE		DELIVERY MODE		
03/09/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/599,345

Applicant(s)

JONKERS ET AL.

Examiner

NICOLE IPPOLITO RAUSCH

Art Unit

2881

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/4/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Objections

1. Claim 13 objected to because of the following informalities: "lithography" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 4-5 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are ripe with indefinite language- in claim 1 the issue is with the wording "high mass throughput"-no boundaries are given with respect to what sort of mass throughput is considered 'high'. In claims 4-5 and 10-11, though it is definite that the gas must have certain properties (i.e., atomic weight), the claim the further requires "for example...". These wording renders the claims indefinite, as it is unclear if the gases *must* be argon, krypton, helium or hydrogen, or they just *might* be. For the purposes of examination, it will be considered that these gases must not necessarily be, but the weight and 'substantially transparent' criteria will be met.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3-5, 7, 9-11 and 13-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Koster et al. (U.S. Patent Application Publication Number 20040032574, from hereinafter "Koster").
6. In regards to claims 1 and 7, Koster teaches a method and apparatus for removing contaminant particles such as atoms, molecules, clusters, ions and the like (see, i.e., abstract) produced by means of a radiation source (FIGS. 2-4, source LA, paragraph 0045) during generation of short-wave radiation having a wavelength of up to approximately 20 nm (paragraphs 0013-0014 and 0031), by means of a first gas guided at high mass throughput between the radiation source and a particle trap arranged in a wall of a mirror chamber (FIG. 4, purge gas supply 14, tube 13, gas flow 15, mirror MR, wall 12, paragraphs 0065-0069), characterized in that a second gas is introduced into the mirror chamber and in that its pressure is adjusted such that it is at least as high as the pressure of the first gas (paragraph 0066 teaches that the gas flow may be a mixture of the noble gases, but as the originate from the same source, will thus have the same pressure).
7. In regards to claims 3 and 9, Koster teaches that the first gas is guided transversely to the propagation direction of the radiation in a channel that is at least partially laterally bounded (FIG. 4, purge gas supply 14, tube 13, gas flow 15, mirror MR, wall 12, paragraphs 0065-0069).

8. In regards to claims 4 and 10, Koster teaches that the noble gas argon is used (paragraphs 0061 and 0066, argon is a noble gas).
9. In regards to claims 5 and 11, Koster teaches that the second gas is helium (paragraphs 0061 and 0066, helium is a noble gas, and Koster teaches 'inert' or 'noble' gases).
10. In regards to claim 13, Koster teaches a lithography device according to claim 7 (paragraphs 0007 and 0015, also FIG. 1 illustrates a lithography device).
11. In regards to claim 14, Koster teaches generating radiation in a wavelength range of 2-20 nm for a lithography device (paragraphs 0007, 0013-0015, 0031, and FIG. 1).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 2, 6, 8, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koster as applied to claims 1 and 7 above, and further in view of Ohtoshi et al. (U.S. Patent Number 5949076, from hereinafter "Ohtoshi").

15. In regards to claims 2 and 8, Koster fails to teach that the pressure of the second gas is adjusted such that it is higher than the pressure of the first gas.

Ohtoshi teaches that the pressure of the second gas is adjusted such that it is higher than the pressure of the first gas (column 11 lines 59-65, column 13 lines 56-65 and column 14 lines 41-55).

In view of the teaching of Ohtoshi it would have been obvious to one of ordinary skill in the art at the time the invention was made that the pressure of the second gas is adjusted such that it is higher than the pressure of the first gas. As Ohtoshi discusses, different gases in the mixture will have different effects on the contaminates (see column 13). In order to maximize the particulate removal while minimizing the loss of intensity of the light beam due to absorption, it would be necessary to adjust the gas amounts, and as such the flow rates/pressures accordingly. In the interest of maximizing the efficiency of the device, this would have been obvious.

16. In regards to claims 6 and 12, Koster fails to teach that the flow velocity of the first gas and/or the second gas is adjusted by means of appropriate devices.

Ohtoshi teaches that the flow velocity of the first gas and/or the second gas is adjusted by means of appropriate devices (FIG. 13, valves 17, column 11 lines 59-65, column 13 lines 56-65 and column 14 lines 41-55).

In view of the teaching of Ohtoshi it would have been obvious to one of ordinary skill in the art at the time the invention was made that the flow velocity of the first gas and/or the second gas is adjusted by means of appropriate devices. As Ohtoshi discusses, different gases in the mixture will have different effects on the contaminates (see column 13). In order to maximize the particulate removal while minimizing the loss of intensity of the light beam due to absorption, it would be necessary to adjust the gas amounts, and as such the flow rates/pressures accordingly. In the interest of maximizing the efficiency of the device, this would have been obvious.

17. In regards to claim 20, Koster does teach generating radiation a wavelength range of 2-20 nm (paragraphs 0013-0014 and 0031). However, Koster fails to teach a microscope-rather, Koster focuses on lithographic techniques.

Ohtoshi teaches a microscope (columns 14-15 lines 56-2).

In view of the teaching of Ohtoshi it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the light beam of Koster as a microscope. Imaging resolution is dependent largely on the scale of the device being used. Thus, a wavelength in the range of 2-20 nm would allow for imaging on the scale of 2-20 nm. This is an extremely high resolution and thus, for sub-micron devices, is highly desirable. In the interest of being able to image to a high degree of granularity, using the beam as a microscope would have been obvious.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE IPPOLITO RAUSCH whose telephone number is (571)270-7449. The examiner can normally be reached on Monday through Thursday 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. I./
Examiner, Art Unit 2881

/ROBERT KIM/
Supervisory Patent Examiner, Art Unit 2881